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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/501,732

07/16/2004

Shinya Kadono

2004_1141A

4903

513 7590 04/16/2008

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WASHINGTON, DC 20006-1021

EXAMINER

WERNER, DAVID N

ART UNIT

PAPER NUMBER

2621

MAIL DATE

DELIVERY MODE

04/16/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/501,732	Applicant(s) KADONO, SHINYA	
	Examiner DAVID N. WERNER	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 July 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20040716</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

1. This is the First Action on the Merits for US Patent Application 10/501732, which is the National Stage entry under 35 U.S.C. 371 of International Application PCT/JP03/15454, filed 03 December 2003, and claiming foreign priority to Japanese Patent Application 2003-10297, filed 17 January 2003. Currently, claims 1-25 are pending.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement filed 16 July 2004 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered. In this case, no copy of any of the foreign patent references has been received. As noted on the IDS, the US version of three of these references has been considered, but there is no corresponding US version of JP-2003-9085. In addition, it is noted that Applicant

has failed to list or provide a copy of the Non-Patent Literature document listed in the International Search Report.

Drawings

4. Figures 1-6 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

5. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: "Variable-Speed Moving Picture Coding Method and Decoding Method".

Claim Rejections - 35 USC § 101

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 23-25 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The USPTO "Interim Guidelines for Examination of Patent Applications for Patent Subject Matter Eligibility" (O.G. Notice of 22 November 2005), Annex IV, reads as follows:

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." *The New IEEE Standard Dictionary of Electrical and Electronics Terms* 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

Both types of "descriptive material" are nonstatutory when claimed as descriptive material *per se*. *Warmerdam*, 33 F.3d at 1360, 31 USPQ2d at 1759. When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized. Compare *In re Lowry*, 32 F.3d 1579, 1583-84, 32 USPQ2d 1031, 1035 (Fed. Cir. 1994) (claim to data structure stored on a computer readable medium that increases computer efficiency held statutory) and *Warmerdam*, 33 F.3d at 1360-61, 31 USPQ2d at 1759 (claim to computer having a specific data structure stored in memory held statutory product-by-process claim) with *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure *per se* held nonstatutory).

Data structures not claimed as embodied in computer-readable media are descriptive material *per se* and are not statutory because they are not capable of causing functional change in the computer. See, e.g., *Warmerdam*, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure *per se* held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory.

Similarly, computer programs claimed as computer listings *per se*, i.e., the descriptions or expressions of the programs, are not physical "things." They are neither computer components nor statutory processes, as they are not "acts" being performed. Such claimed computer programs do not define any structural and functional interrelationships between the computer program and other claimed elements of a computer which permit the computer program's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a computer program is a computer element which defines structural and functional interrelationships between the computer program and the rest of the computer which permit the computer program's functionality to be realized, and is thus statutory. See *Lowry*, 32 F.3d at 1583-84, 32 USPQ2d at 1035. Accordingly, it is important to distinguish claims that define descriptive material *per se* from claims that define statutory inventions.

Computer programs are often recited as part of a claim. USPTO personnel should determine whether the computer program is being claimed as part of an otherwise statutory

manufacture or machine. In such a case, the claim remains statutory irrespective of the fact that a computer program is included in the claim. The same result occurs when a computer program is used in a computerized process where the computer executes the instructions set forth in the computer program. Only when the claimed invention taken as a whole is directed to a mere program listing, i.e., to only its description or expression, is it descriptive material per se and hence nonstatutory. Since a computer program is merely a set of instructions capable of being executed by a computer, the computer program itself is not a process and USPTO personnel should treat a claim for a computer program, without the computer-readable medium needed to realize the computer program's functionality, as nonstatutory functional descriptive material. When a computer program is claimed in a process where the computer is executing the computer program's instructions, USPTO personnel should treat the claim as a process claim. See paragraph IV.B.2(b), below. When a computer program is recited in conjunction with a physical structure, such as a computer memory, USPTO personnel should treat the claim as a product claim.

Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. *O'Reilly*, 56 U.S. (15 How.) at 112-14. Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in Sec. 101.

On the other hand, from a technological standpoint, a signal encoded with functional descriptive material is similar to a computer-readable memory encoded with functional descriptive material, in that they both create a functional interrelationship with a computer. In other words, a computer is able to execute the encoded functions, regardless of whether the format is a disk or a signal.

These interim guidelines propose that such signal claims are ineligible for patent protection because they do not fall within any of the four statutory classes of Sec. 101.

Claims 23 and 24 define a "program" embodying functional descriptive material. However, the claim does not define a computer-readable medium or memory and is thus non-statutory for that reason (i.e., "When functional descriptive material is recorded on some computer-readable medium it becomes structurally and functionally interrelated to the medium and will be statutory in most cases since use of technology permits the function of the descriptive material to be realized" –*Guidelines*, Annex IV). That is, the scope of the presently claimed program can range from paper on which the program is written, to a program simply contemplated and memorized by a person.

However, even if the claimed program of claims 23 and 24 was properly claimed as embedded on a computer-readable medium, this would fail to present the claims as statutory, since the specification of the present invention, at page 13: lines 10-14

defines the claimed computer readable medium as encompassing statutory media such as a "CD-ROM" as well as *non-statutory* matter such as a "bit stream" or a "transmission medium such as the Internet".

A signal embodying functional descriptive material is neither a process nor a product (i.e., a tangible "thing") and therefore does not fall within one of the four statutory classes of §101. Rather, a signal is a form of energy, in the absence of any physical structure or tangible material. See *In re Nuijten*, 84 USPQ2d 1495 (Fed. Cir. 2007, *en banc* denied 2008).

Because the full scope of the claim as properly read in light of the disclosure encompasses non-statutory subject matter, the claim as a whole is non-statutory.

Claim 25, in addition, defines a "bit stream" *per se*, and thus is neither a process nor a product, and therefore does not fall within one of the four statutory classes of §101.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 11, 12, 17, 22, and 25 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5,768,470 A (Muto), of which corresponding Japanese Patent

Application Publication 8-186794 was listed in the Information Disclosure Statement of 16 July 2004, and cited in the International Search Report. Muto teaches a system for reproducing image data from a recording medium based on header data. Regarding claim 11, in Muto, pictures are coded in sets of pictures GD, each of which contains a header HD and a set of picture data, as shown in figure 2 (column 5: lines 1-13). Included in the header data is the data length of the pictures in the picture set GD, used to calculate the amount of data that can be read in an N-tuple speed reproduction (column 5: lines 62-67). This data length then corresponds with the claimed "variable speed reproduction information", and the reading this data corresponds with the claimed "information extraction step". As shown in Table 3, different patterns of picture reading take different readout times, and thus have different maximum reproduction speeds (column 7: lines 1-32). Then, the further processing in step S5 of the method of Muto of determining the particular pattern for a chosen playback speed (column 6: lines 17-22) corresponds with the claimed "decoding step".

Regarding claim 12, as shown in figure 4, each GD of Muto begins with an I picture that does not depend on other pictures for playback, and other P pictures and B pictures that directly or indirectly are decoded from information in the I picture (column 7: lines 30-48) and so corresponds with the claimed "random access unit".

Regarding claim 17, table 3 shows a map of maximum playback speeds for various reproduction patterns in several GDs (column 7: lines 1-16). This corresponds with the claimed "index". The controller 6 of Muto determines, based on a given playback speed, which pattern is the most appropriate, and controls decoder 6 to

transfer the selected pictures according to the pattern (column 7: line 66–column 8: line 25). This corresponds with the claimed step of specifying a reference relationship.

Regarding claim 22, in Muto, encoded data decoding unit 4 reads the data quantity of pictures in a GD from the header data of the GD (column 5: lines 37-42). This corresponds with the claimed "information extraction unit".

Regarding claim 25, the sequence of pictures in Muto comprising picture sets GD having header data HD corresponds with the claimed "bit stream".

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 1-10, 13-16, 18-21, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Muto in view of US Patent 6,075,920 A (Kawamura et al.), of which corresponding International Publication 95/23411 was listed in the Information Disclosure Statement of 16 July 2004, and cited in the International Search Report. Claim 13 of the present invention specifies "information specifying the pictures to be reproduced" according to a variable speed reproduction. Although Muto describes a table for reproducing various patterns of picture types at different speeds, based on the amount of data in a GD, corresponding with the claimed "variable speed reproduction

information”, Muto does not specify additional information for the pictures specifying if a picture may be reproduced at the given speed.

Kawamura et al. teaches a system for recording and reproducing supplemental data for reproduction in a subcode on a recording medium with the main reproduction data. Regarding claim 13, in Kawamura et al., one example of the subcode data is a picture type information field that indicates if the picture in a sector in the recording medium is an I picture, a P picture, or a B picture (column 6: lines 23-46). During reproduction at a high speed, depending on what types of pictures are to be decoded at the speed, the picture type of the sector is read, and if the picture type in the current sector is not a picture type for the current speed, the sector is not decoded (column 15: lines 12-31). Then, the picture type subcodes, signifying if pictures may be decoded for a given speed, correspond with the claimed “information specifying the pictures to be reproduced at said speeds”.

Muto discloses the claimed invention except for presenting picture data with information showing if a picture may be reproduced at a certain speed. Kawamura et al. teaches that it was known to present picture type data on a recording medium for selective reproduction at high speed. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to improve the data reproduction system of Muto by reading the picture type data of Kawamura et al., to further reduce data readout time, the limiting factor for the number of pictures to be reproduced in a high speed in Muto (column 6: line 56–column 7: line 24), since Kawamura et al. states in column 6: lines 40-46 that such a modification would

decrease read time. Therefore, one having ordinary skill in the art would have recognized that applying the reproduction technique of Kawamura et al. to the reproduction system of Muto would have yielded the predictable result of lower picture readout time and result in an improved system by allowing more pictures to be displayed in a high speed reproduction mode. See *Dann v. Johnston*, 425 U.S. 219, 189 USPQ 257 (1976); *In re Nilssen*, 85 F.2d 1401, 7 USPQ2d 1500 (Fed. Cir. 1988).

Regarding claims 14, in Kawamura et al., a subcode additionally includes a time code field (column 5: lines 41-42, 58-67; column 6: lines 1-13), which may include a picture number (figure 13).

Regarding claim 15, in Kawamura et al., each sector in the recording medium contains the subcode that includes the picture data type (column 5: lines 3-12, 41-48).

Regarding claims 16 and 20, in Kawamura et al., the subcode also includes a temporal reference that indicates the addresses of other pictures relative to a current picture indicating the order of the pictures in an MPEG GOP to be displayed (column 6: lines 47-57). Since this data, like all subcode data in Kawamura et al., is part of a sector header, it is always read even if the data itself is not read, or skipped in a high speed reproduction.

Regarding claim 18, the reproduction speed table in Muto corresponds with the claimed "map table", the selected reproduction speed corresponds with the claimed "index", and the picture type subcodes in Muto correspond with the claimed "information specifying the pictures to be reproduced at said speeds".

Regarding claim 19, in Muto, the maximum data quantity readable, and consequently, the appropriate pattern of pictures, for a given speed is calculated while reading header data of a GD (column 5: 62–column 6: line 7), corresponding with the claimed steps of extracting and decoding the map table.

Regarding claim 24, Kawamura et al. operates on a disk drive in a “computer system” (column 5: line 54).

Regarding claims 1-10, 21, and 23, these claims describe a video encoder that encodes the video decoded by the decoder of claims 11-20, 22, and 24. Muto does not describe encoding data, only decoding. However, Kawamura et al. describes both data recording and encoding (column 8: line 30–column 11: line 63) along with data decoding and reproducing (column 11: line 64–column 18: line 46). It is respectfully submitted that video encoder 5 in Kawamura (column 10: lines 46-57), modified to include the HD header of Muto, satisfies the requirements of the coder in the present invention, since it is inherent that the video decoded by the decoding system of Muto has been encoded.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 6,002,834 A (Hirabayashi et al.) is an English-language version of JP 2000-354224 A, included in the International Search Report. US Patent 6,466,733 B1 (Kim) teaches a system for placing a trick play data pattern in a stuffing data region of a digital video sequence. European Patent Application Publication 1,148,727 A1 (Rabu et al.) teaches a system for inserting trick mode

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information in packet headers in a PES bitstream. An English language version of the International Search Report, published in International Publication 2004/066635A1, has been added to the record.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David N. Werner, whose telephone number is (571)272-9662. The examiner can normally be reached on MWF from 9:00-6:30, TR from 9:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on (571) 272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/D. N. W./

Examiner, Art Unit 2621

/Mehrdad Dastouri/

Supervisory Patent Examiner, Art Unit 2621